

AT FORT
ATELIER EUROPEAN FORTRESSES

Self Analysis Report



Antwerp

donderdag 25 juli 2013

CONTENTS

1. Introduction
2. General Discription
 - 2.1 Historical Development
 - 2.2 Protective Statuses
 - 2.3 Framework 'Fortengordel rond Antwerpen'
3. Continuation
4. Enabling conditions of re-use of sites
 - 4.1 Theme heritage and landscape (case Fort of Oelegem)
 - 4.2 Theme ecology and bats (case Fort 7 Wilrijk)
 - 4.3 Theme mobility and accessibility (case Fort Lillo)
 - 4.4 Theme program (case Fort 4 Mortsel)
5. Redevelopment models for multifunctional use of sites
 - 5.1 Public property (case Fort of Duffel)
 - 5.2 Private property (case Fort of Stabroek)
 - 5.3 Public-private partnership (case Fort of Liezele)
6. Governance models
7. Report of the RSG-meeting
8. Literature

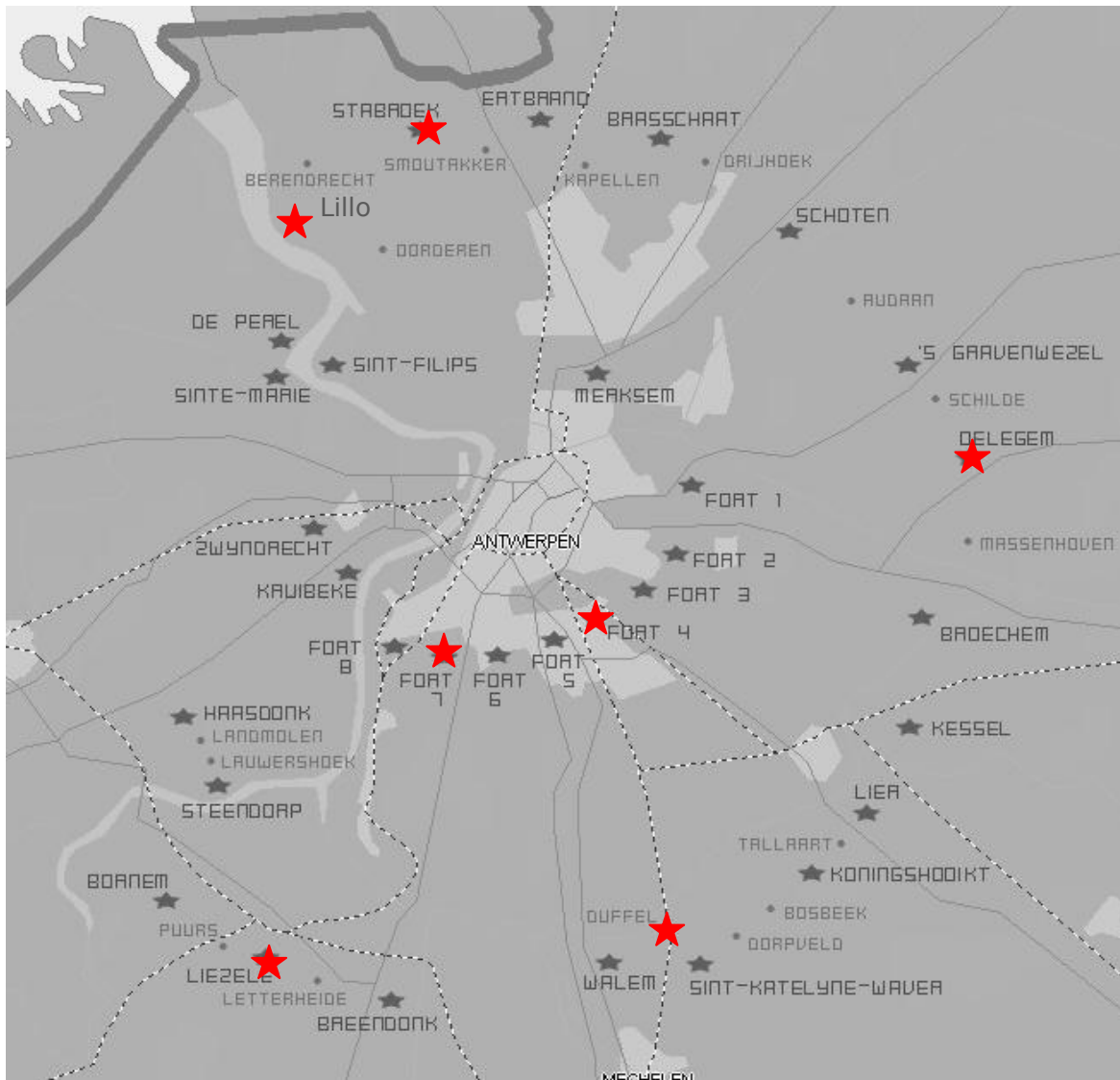
1. INTRODUCTION

In 2009, the 'Fortengordels rond Antwerpen' was selected as a **strategic project** in line of the 'Ruimtelijk Structuurplan Vlaanderen' (the Spatial Structure Plan for Flanders). This selection provided financing from the Flemish government to support the preparation of the **framework 'Fortengordels rond Antwerpen'**. The 'Fortengordels rond Antwerpen' is part of the **FLGP-project** (forten en linies in grensbreed perspectief) which ran from 2009 to 2012 and was supported by the European program INTERREG IV A Flanders-Netherlands. Additionally, in the context of the **Great War-project**, supported by Europe, the Province of Antwerp will be looking for people and organizations who wish to undertake initiatives.

The Province of Antwerp now wishes to acquire and share knowledge of dealing with cultural military heritage within the **AT FORT-project**, part of the INTERREG IV C-program. Specifically, the Province of Antwerp has three main objectives:

- a) To explore and research solutions and methods to reuse military heritage in an adapted way, and respectively to identify and improve them.
- b) To identify and research the potential for transfer of various existing redevelopment models for multi-purpose use of military heritage.
- c) To develop effective and workable policy models with innovative models for public-private partnerships, legal issues and models for marketing.

The Province of Antwerp can rely on extensive experience as a result of various Flemish and European projects in which the province has participated. Given the large scale of the fort belts and the many forts of Antwerp: **35 forts, 14 entrenchments, 1 Anti-tank Canal and 1 Defensive Dyke** (see figure below), the province is very familiar with various challenges. Several forts are currently already reused for culture, nature, business, recreation and tourism purpose. In this report, several case studies are presented according to different conditions for reuse (**Fort Oelegem, Fort 7 Wilrijk, Fort Lillo, Fort 4 Mortsel**) and according to the different redevelopment models (**Fort Duffel, Fort Stabroek, Fort Liezele**). In the figure below, the cases are indicated by a red star.



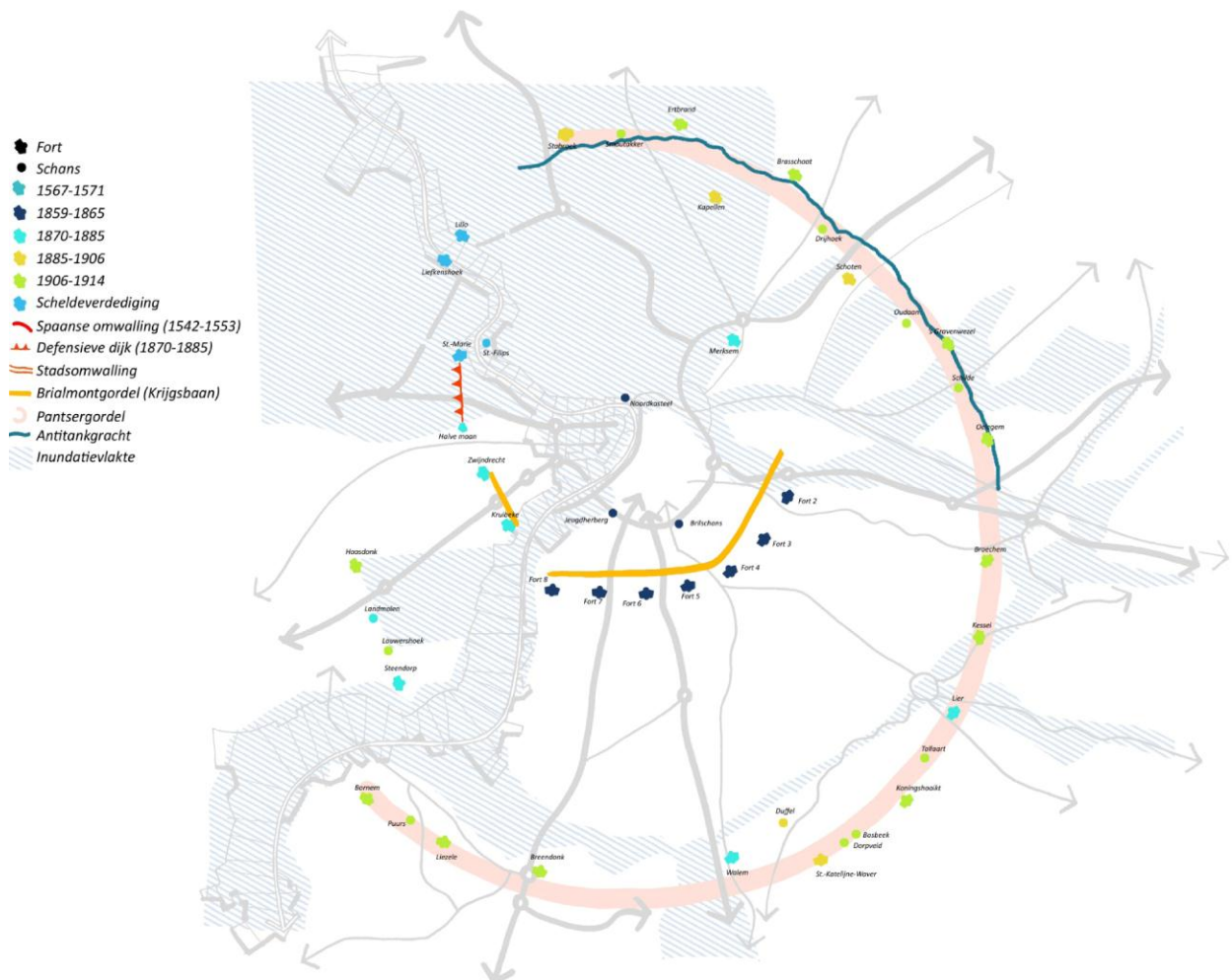
Location of the fort belts around Antwerp and indication of the cases.

2. GENERAL DESCRIPTION

2.1. Historical development

Throughout the centuries, various fortifications were built around Antwerp. The oldest sixteenth century ramparts of the city are lost. The largest fort belts around Antwerp date from the 19th and 20th centuries. In total, these fort belts around Antwerp consist of **35 forts, 14 entrenchments, 1 Anti-tank Canal and 1 Defensive Dyke**. These military infrastructures are situated in circular structures around the city of Antwerp and extend far into the surroundings.

The figure below shows the different parts of the fort belts categorized according to period in which they were built.

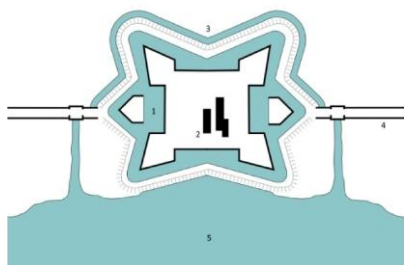


Relics fort belts (Source: Kaderplan 'Fortengordels rond Antwerpen')

For a long time the first ramparts of the city (10th, 14th, 15th, 16th, 17th and 18th century) have had a guiding influence on the development of Antwerp. However, today these military infrastructure are mostly lost. Only along the Scheldt some forts are preserved: Fort Lillo, Fort Liefkenshoek, Fort St. Philip and Fort St. Marie. The current forts are mainly the result of later renovations of the fortresses.



The siege of the city of Antwerp, 16th century (Source: Wikipedia)



Typology river fort – aerial photo Fort Lillo (Source: Kaderplan 'Fortengordels rond Antwerpen', Vildaphoto)

After the independence of Belgium in 1830, the country was imposed a strict neutrality. Given the political context the Belgians feared a invasions by one of the greater European empires. Since Belgium has no significant natural defense, it was decided not to defend the whole country but to opt for a **'National Reduit'**: Antwerp. The choice of Antwerp was motivated by strategic, political and economic interests. First the existing walls of the city were modernized, but later it was decided that new military infrastructures around the city had to be built. These military infrastructures resulted in two fort belts surrounding the city which are to this day very well preserved.



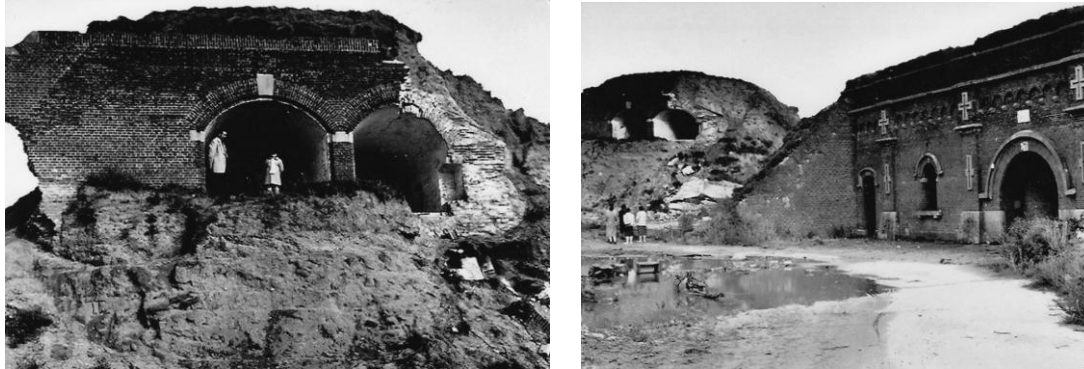
Gallis Anvers, Vernacule Antwerpen, 1649 (Joan Blaeu)

In 1859, only a few years after the old rampart was modernized, it was decided to create a new wall around the city. This new wall had to offer better protection for Antwerp in times of war. This wall, called the '**Great Ramparts**', was designed by Captain Henri Alexis Brialmont. The 'Great Ramparts' consisted of a rampart, situated at the current ringroad, a more distant belt of 8 brick forts along the current Krijgsbaan and inundation fields in the north of Antwerp.



The Great Ramparts with the North Castle, situation 1888

The rampart situated at the current ring, consisted largely of **bare earth walls on a brick base**, fronted by a moat. It had 19 gates, an arsenal and barracks. At the north of the city a new citadel was constructed: the North Castle. Little remains of both the wall and the citadel.



The gates during demolition in 1959 (Source: www.fortengordels.be)

South of Antwerp some more distant forts were constructed to protect the city from hostile fire. The forts were about 30 acres, situated at a distance of 2.5 km from the city and lay 2 km apart. They are all shaped identically and consist of a central redoubt, platforms, walls and batteries for the artillery and a broad wet ditch (see Figure 4.5 and 6). Only one of these forts, the fortress in Wijnegem, was later demolished.



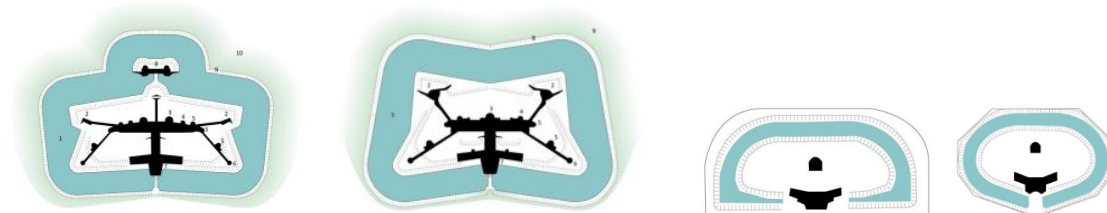
Typology Brialmont fort – central réduit Fort Edegem – Aerial Wommelgem (Source: Kaderplan Plan 'Fortengordels rond Antwerpen', Vildaphoto)

Shortly after the construction of the 'Great Ramparts', the fortifications from 1859 were already outdated. Because new docks were constructed north of the city, the port of Antwerp was insufficiently protected. In addition, the range of cannons remained to increase. Therefore it was decided in 1870 to expand the Brialmontbelt on Linkeroever (the left bank of the River Scheldt): Forts Kruibeke and Zwijndrecht. Furthermore the Defensive Dyke and Fort-entrenchment Halve Maan were constructed. The Defensive Dyke was constructed in 1870 as a dyke for the inundation area in Melsele Polder. This embankment is an earthen wall with moat, a brick bridge and a concrete barrier. With the floods of 1953, part of the dyke was excavated to fill sandbags yet the dyke is still relatively intact. Finally, the brick fort of Merksem was built to strengthen the Brialmontbelt. This fort had to improve the defense of the north of Antwerp and was situated in a strategic location between the inundation area of the Schijnvallei and the polders.



Aerial photo Fort Zwijndrecht and aerial photo Defensive Dyke and Fort-Entrenchment Halve Maan (Source: Vildaphoto)

In 1906 the Belgian government decided to build a second, **armored fort belt** around Antwerp: the 'Buitenlinie' (outer belt) of the National Redit. For this purpose, 11 armored forts and 12 armored entrenchments were built in a wide arch around the city: from Haasdonk to Stabroek. These forts and entrenchments were constructed in **reinforced concrete** and had to resist the most modern artillery. This was an extraordinary enterprise: 23 construction sites spread over 100 km and an estimated total cost of 14 million Belgian francs.

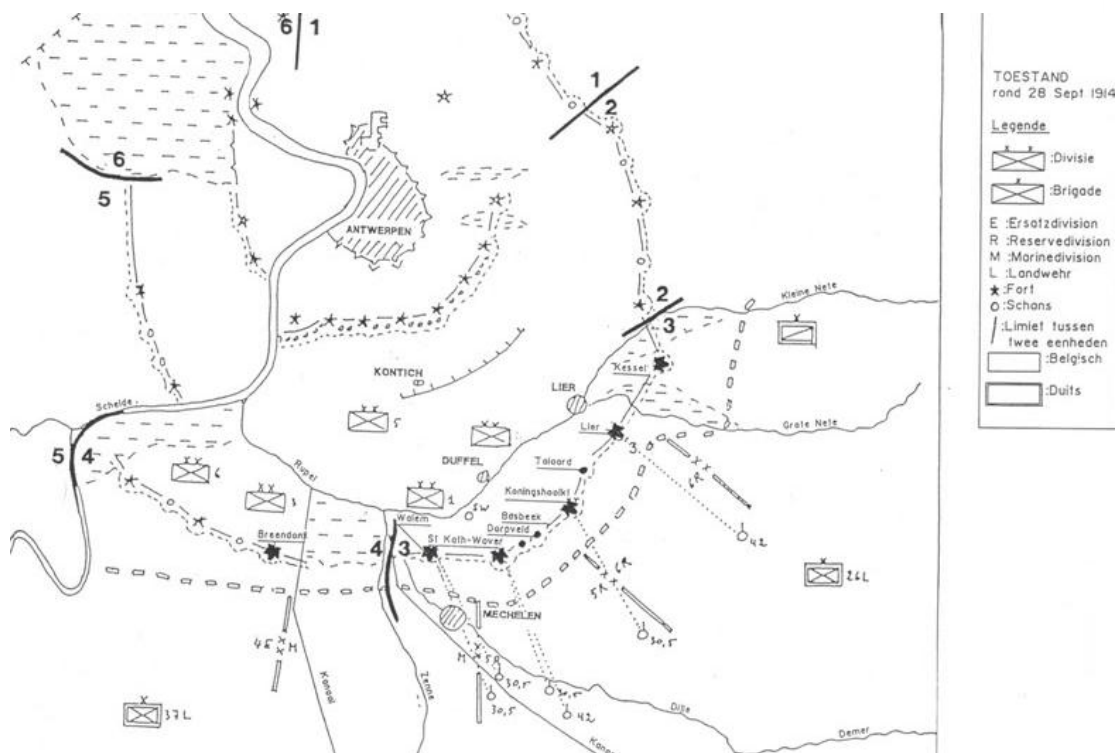


*left: overview of the two types of concrete armored forts
right: overview of the two types of concrete entrenchments
(Source: Kaderplan 'Fortengordels rond Antwerpen')*



Fort Liesele and Entrenchment Lauwershoek (source: Vildaphoto)

When Germany invaded Belgium in 1914, the start of the First World War, the construction of this second fort belt had been completed, but arming the fortress had only partially been completed. The fortifications were not able to fully stop the Germans but did contribute to a delay. The 'National Redit' functioned from August to October 1914 as a safe haven. This delay of the Germans was important for the civilian population and the army, which in this time was able to retreat behind the Yser plain.



The defense lines in 1914

After the First World War the defense concept thoroughly changed with the invention of the bunker, aviation and the development of new weapons like tanks. The military role of the fort belts was thus nearly finished. Moreover, some forts were heavily damaged. After the Great War, the army used the forts therefore only merely as a warehouse for materials and as trainingcenters. In this period, however, a final military infrastructure was developed: the Anti-tank Canal. This 33 km long canal was built between the Albert Channel in Oelegem (Ranst) and the River Scheldt in Berendrecht (Antwerp). It was built between 1937 and 1939 and was meant as an obstacle to hostile tanks. The **Antitank Canal** ran zigzagging through the landscape and was protected by numerous bunkers and lock bunkers, which also controlled the water level. This Antitank Channel is also part of the project 'Fortengordels rond Antwerpen'.



Lock bunker
Stabroek – aerial photo Anti-tank canal in Stabroek (Source: Vildaphoto)

2.2. Protection Statuses

Few of the military infrastructures are currently owned by the Belgian army. Most Antwerp fortresses are currently demilitarized and claimed for different purposes. These purposes or project proposals for possible future redevelopment of the forts frequently conflict with protection measures from nature and heritage.

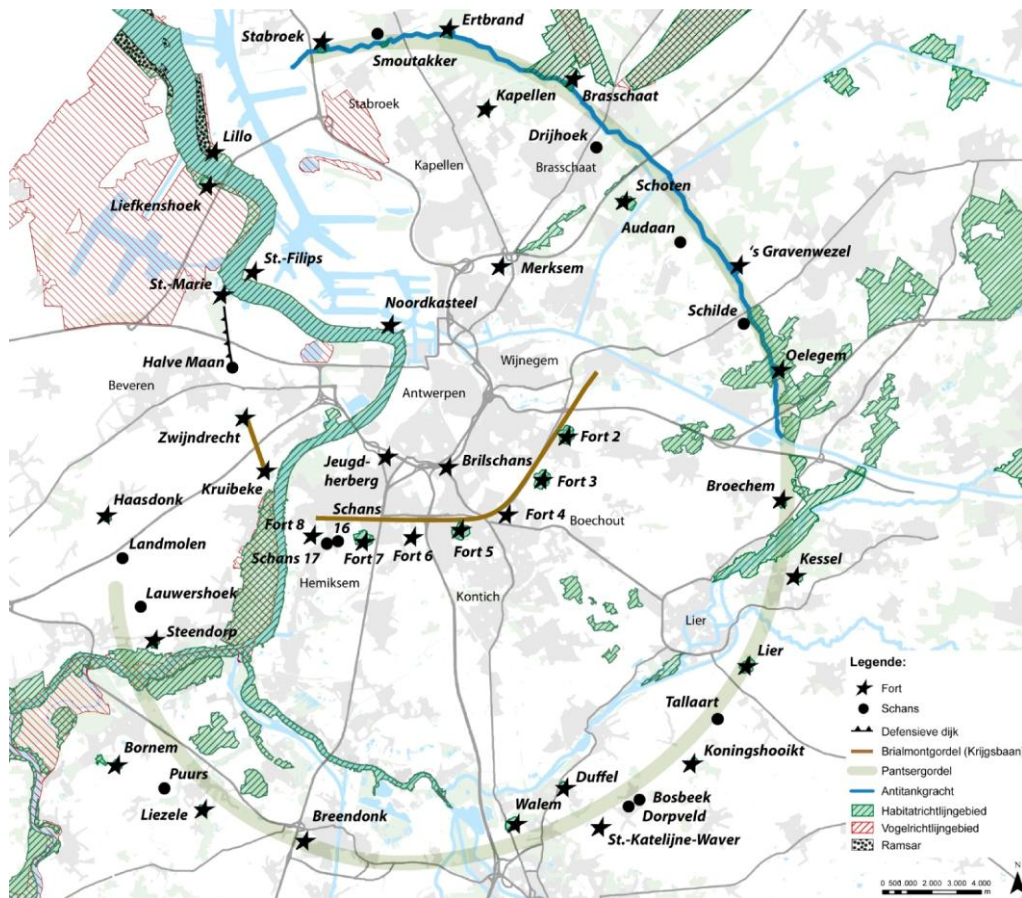
2.2.1. protection measures from a nature point of view

The Antwerp fort belts are an important wintering site for **bats**. Each year, about 6,800 bats of 12 different species seek shelter in the forts during winter. The population in the Antwerp fort belts is more than half of the full annual winter bat population of Flanders. In volume as well as range of bat species, the Antwerp fort belts are of transnational ecological importance.

Bats are subject to both the Belgian law on protected species (1980), the International Conventions of Bonn (1990) and Bern (1989), as well as the European Habitats Decree (1992). These laws impose strict restrictions, e.g. it is forbidden to damage or deliberately disturb the shelters or hiding places of the species.

Bats live in colonies which use a network of different habitats during the different seasons (maternity, couple time, migration and wintering). The Antwerp forts attract many bats, a consequence of the differentiation of spatial structures, such as land covered buildings, moat, forests and arid grasslands, which function as a suitable habitats for summer and winter, hunting location, swarm location and migration routes. To each of these sub-habitats, strict spatial conditions must be maintained (humidity, temperature, insects wealth, etc). These are the spatial and ecological conditions that prevent or impede with other interventions in the fort and the surroundings of the fort. Within the framework 'Fortengordels rond Antwerpen' research has been done on these spatial conditions, in order to draft better management plans in the future.

Furthermore, the Antwerp forts form only an attractive habitat for bats. Also other endangered fauna and flora is found at the different sites. For this purpose the forts are protected as natural habitats, based upon the European Habitats Directive of 21 May 1992. With this directive, the task was imposed on the member states to denote Special Areas of Conservation (SACs) for certain habitats. The Flemish government has designated some of the Antwerp forts as such SACs.

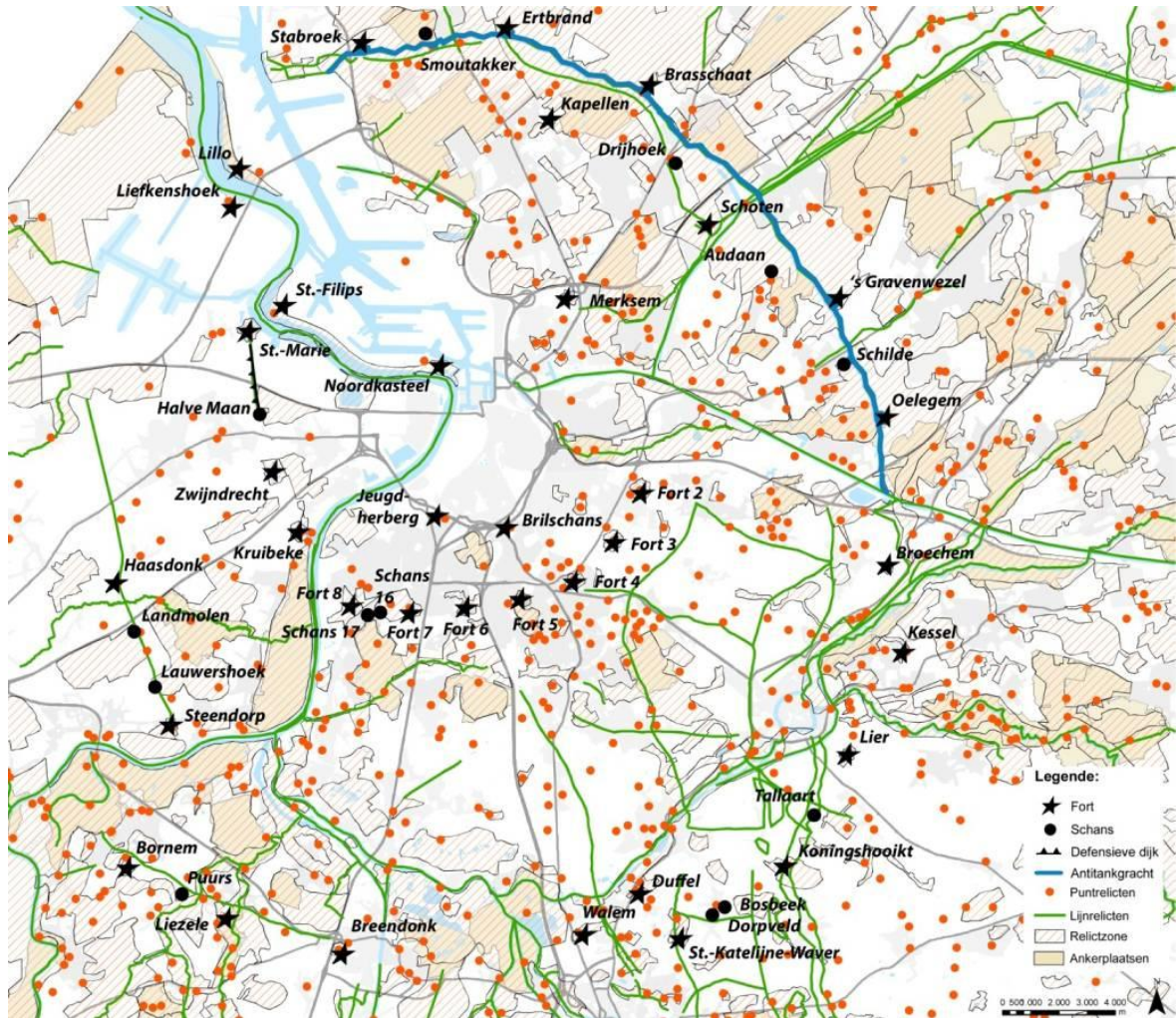


Summary natural protections in military heritage (Source: Kaderplan 'Fortengordels rond Antwerpen')

2.2.2. Protection measures from a heritage point of view

Furthermore, various military heritage sites are protected by the heritage policy, either as a monument or a protected landscape. **Protection as a monument** is based on the Decree of 3 March 1976 on Protection of Monuments and Urban and Village sights. Such protection has three consequences: a maintenance duty, stricter conditions concerning permits and/or authorization to perform certain works and various possibilities for financial help by the government.

For landscapes there has been a legal possibility of protection since 1931, but this legislation was replaced by the landscaping decree of 1996. **Protection as a valuable landscape** has several consequences. Firstly, a maintenance and preservation duty applies to owners as well as users. In addition, the legislation provides possibilities for the foundation of a management committee, the preparation of a management plan and options for maintenance and landscape subsidies.



Summary heritage protections military heritage (Source: Kaderplan 'Fortengordels rond Antwerpen')

2.3. Framework 'Fortengordels rond Antwerpen'

Project definition

In the past, several initiatives have already been undertaken to develop a framework for the fort belts. The last of these studies, 'Herover de forten' ('Recapture the forts'), was prepared in 2002. Recently, a new plan, the framework 'Fortengordels rond Antwerpen' ('Fort belts around Antwerp'), was prepared. This project is the result of two previous projects: regional project 'Fort Belts' (Province of Antwerp, cell Regional Policy) and the Interreg IV A project 'Forten en Linies in Grensbreed Perspectief' (a cross-border partnership between the provinces of East and West Flanders, Antwerp, Zeeland and Noord-Brabant).

In the new plan, finished in 2012, the horizons were broadened. Unlike previous studies, both the inner and outer fort belts, the surroundings of the forts and the connections between the forts were taken into account in constructing a common vision. Furthermore, this plan is a framework and not a detailed masterplan for each fort, unlike the study 'Herover de forten'. In the past such a detailed masterplan for each fort appeared to be not feasible.

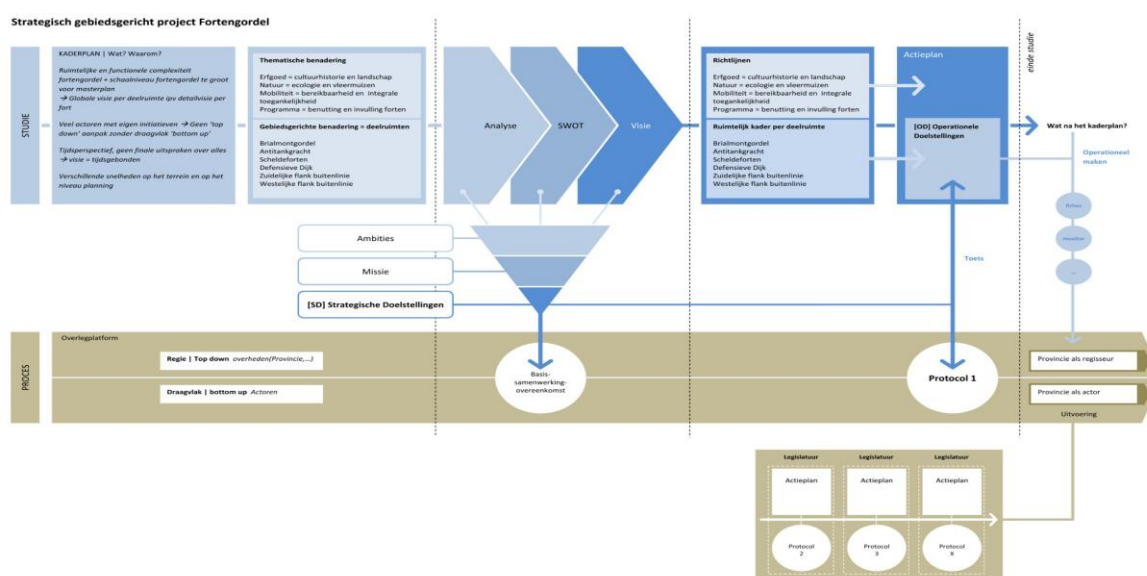


diagram depicting the workflow within the framework 'Fortengordels Antwerpen' (bigger version see attachment) (Source: Kaderplan 'Fortengordels rond Antwerpen')

The purpose of the framework consists of an analysis of the existing situation, developing a global vision on different scales, listing possible actions and introducing a consultation structure to create broad support. There was much focus on the process and the consultation of the various stakeholders during the developing of the framework 'Fortengordels rond Antwerpen'.

The studies began by identifying the spatial and functional complexity as well as mapping current initiatives of the many local actors. Subsequently, the study work was divided into two parts: a thematic approach and area-based approach. The **thematic approach** collected knowledge on the themes heritage, nature, mobility

and program. Aside from this thematic approach an **area-based approach** was applied to the various subspaces: the Brialmont belt, the Anti-Tank Canal, the Scheldt Forts, the Defensive Dyke, the Southern flank of the outside line and the Western flank of the outside line. This dual analysis was then translated into a vision with both general guidelines as well as a spatial framework for each subspace.

3. CONTINUATION

The framework 'Fortengordels rond Antwerpen' has now finished and the subsidization by RWO (the Flemish Department for Spatial Policy, Housing and Immobile heritage) is over. The various partners wish, however, to continue the project. There is a general consensus on the need for a common vision and the coordinating role of the province. However, there is disagreement on which steps must be taken to proceed the project.

Firstly, a sustainable translation of the consultation structure from the project 'Fortgordels rond Antwerpen' is currently constructed. It was considered to set up a project office, similar to the Dutch project 'Hollandse Waterlinie'. This idea has, however, been set aside. Instead, the Province of Antwerp will act as a 'director'. In Chapter 6, 'Governance', the role of the Province of Antwerp in the process structure of the framework plan will be further explained.

Secondly, the actions listed within the strategic project 'Fortgordels rond Antwerpen' will be used as a basis to get started. The actions are manageable interventions that translate the complexity of the whole project into practice. These actions were divided into three tracks.

- Track 1 concerns the construction of a general, broad-based vision and supporting studies.
- Track 2 consists of the realization of projects and actions on site.
- Track 3 works on communication and marketing.

Below the various actions within the strategic project 'Fortgordels rond Antwerpen' are listed. Subsequently three example projects are explained.

Track 1 (supporting studies) will work on the following actions:

- An actor analysis
- A framework with implementation-targeted actions
- A gateway in Fort Stabroek-Ravenhof
- A gateway in Oelegem-Vrieselhof
- A gateway near the Anti-Tank Canal
- A gateway in Fort Duffel-Roosendael
- subproject Fort 4 'Kreatieve Kazerne'
- A gateway in Fort Lillo and Fort Liefkenshoek
- The Interreg IV-A project 'Forten en linies in grensbreed perspectief'
- A design for information modules
- Strategic acquisitions in 2010
- A marketing study
- Subproject: 'Campus Vesta' in Fort Broechem
- A brand style
- Interreg IV-C 'At Fort'
- Defensive Dyke in Zwijndrecht

Within track 1 a marketing study was conducted. This study took place within the Interreg IV-A 'Forten en linies in grensbreed perspectief', a collaboration on three military defense structures; 'de staats-spaanse linies', 'de fortengordel rond Antwerpen' en 'de Zuiderwaterlinie'. The purpose of this study was to provide a central theme for each military defense structure, which could then be used for the marketing and product development.

Track 2 (projects and actions) will work on the following actions:

- A gateway in Fort Stabroek-Ravenhof
- A gateway in Oelegem-Vrieselhof
- A gateway near the anti-tank canal
- A gateway port in Fort Duffel-Roosendael
- Subproject Fort 4 'Kreatieve Kazerne'
- Accessibility; 'Fiets-o-Strade Mortsel-Duffel' (bicycle highway)
- Accessibility; 'Sporen naar 2014'
- A gateway in Fort Lillo and Fort Liefkenshoek
- The Interreg IV-A project 'Forten en Linies in Grensbreed Perspectief'
- Photography project
- Strategic acquisitions in 2010
- Interreg 'Great War between the lines'
- Art project: Fort Art / Art Fort
- Product: fort**en**bier (a new kind of beer)

Within track 2 a new product is being developed: the **fortenbier** (fort beer). This beer, an initiative of the non-profit organisation vzw Kempens Landschap, is meant to propagate the fort belts to the broader public and is brewed specifically for an event. Optionally, the beer could be distributed during the rest of the year. But this depends on the results of the marketing study. Currently, the design of the label is already finished and negotiations have started with the brewery. The beer will be officially presented at the event 'de Fortengordel' in 2014.



Label Forten-bier

Track 3 (communication and consultation) will work on the following actions:

- An actor analysis
- A structured dynamic consultation
- The Interreg IV-A project 'Forten en Linies in Grensbreed Perspectief'
- Publications: Project brochure FGLP
- Conference 'Fortengordels nu!'
- Recreational map box
- Line Conference 2010
- Interreg IV-C 'At Fort'
- Website
- The canvas collection
- Publications: 'Een gordel van beton. De Antwerpse Pantserforten'
- Publications: 'De verzameling-Zimmermann (1918): militaire luchtfoto's van Beveren tot Oud-Turnhout'
- Publications: 'Antwerpen Versterkt 2'
- Publications: 'Een harnas van baksteen en beton'
- Publications: 'verslagboek Colloquium 'Fortengordel'

Track 3 includes a canvas collection. Big aerial photos on canvas show the forts in their environment so that the shape, monumentality and the spatial context becomes clear. These canvases will be situated along bicycle and hiking trails, and function as background for speakers at conferences, etc. These canvases can be lent for special occasions such as the 'Open Monumentendag', the 'Fortennacht' and 'Fortendag', etc.

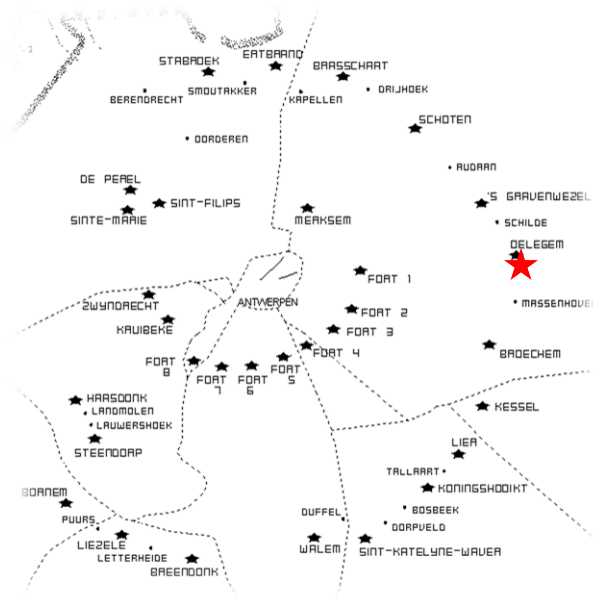


Canvas along bicycle trail and as background to conference

4. PRECONDITIONS FOR THE REUSE OF FORTS

The 'Fortengordels rond Antwerpen' has a large number of military relics: 35 forts, 14 entrenchments, 1 Antitank Canal and 1 Defensive Dyke. Consequently, the province has a lot of experience on the redevelopment of military heritage. Four themes keep reappearing in dealing with the various forts of Antwerp: ecology, heritage, accessibility and program. In the framework 'Fortengordels rond Antwerpen', the everyday experiences on these four themes has been systematized and further research was added. Within the framework, this thematic knowledge is translated into thematic principles, which the Province of Antwerp wishes to reach to project partners in the At Fort. The four themes are explained below, illustrated by 4 cases.

4.1 Theme cultural history and landscape (Case: Fort Oelegem)

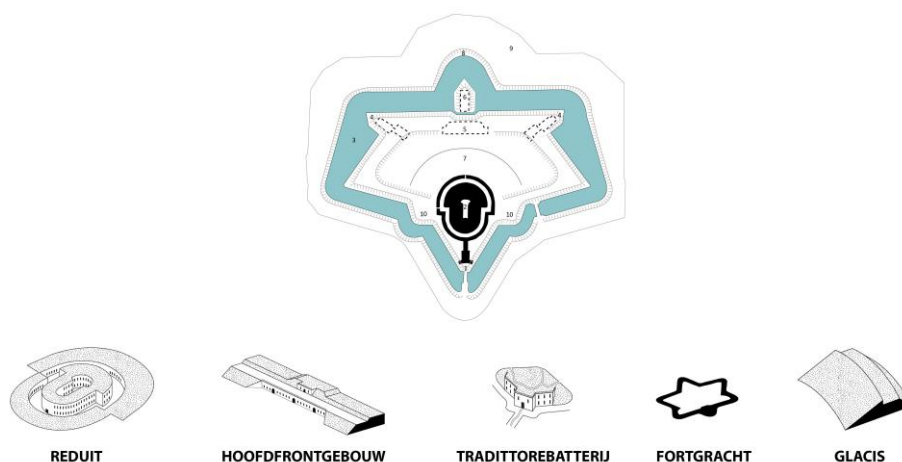


The duality of the cultural-historical significance of the military heritage is a complex subject. On the one hand, a defensive structure is originally a reinforcement designed according to certain functional - spatial principles. On the other hand, the same structure in the present situation is a useless construction with an important cultural and historical significance which should be handled carefully. This can be done in several ways. The total range of heritage strategies goes from *restoration* or *preservation* to *actualization* and *modernization*. These can be defined as follows:

- **preservation:** preservation of (components of) the defensive work as it is today. The current situation is the starting point for conservation. On a modest scale, new additions are possible, but these cannot 'disturb' the historical picture in volume and materialization.
- **restoration:** to restore (components of) the defensive work in its original form. The period of completion or a (crucial) point of time later in the history of the work can be chosen. The current program has to adapt to the restored elements. New additions are minimized because they will be quickly conceived as a disturbing image" with respect to the (referred) historical picture.
- **actualization:** the preservation of (components of) the defensive work as it is today, but adapted to a new program or a new function. Specific adjustments may be made to facilitate this new function. The readability of the design principles is leading for the outlines, but can be changed for specific parts.
- **modernization:** transforming or completely revamping (components of) the defense work in the context of a new function. What disturbs the site can be removed, what is not disturbing can stay.

The strategies mentioned above are more or less typical for fortresses. Only full restoration of all forts or a complete belt is rather impossible because of the poor structural condition of many forts. The costs would be very high. Therefore priorities need to be made. In addition, full restoration could make the development of new functionalities and a new program difficult.

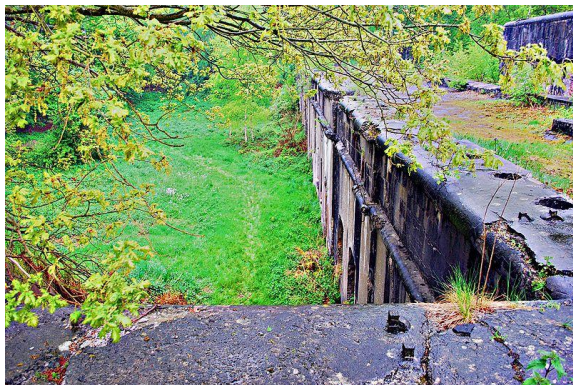
In practice, a mixture of strategies is sometimes the most suitable. Especially the Brialmont Forts consist of a large area, with several buildings. In one and the same fort, the restoration of a special building, conservation of the earthworks and actualization of the less special buildings could take place. Controlling factors include: the cultural and historical importance, costs, intended functionality and newly arisen other interests (e.g. ecology). For (parts of) forts that are important as wintering site for bats, 'preservation' is obvious for example, and not restoration, actualization or modernization. It is therefore important to make a distinction between the different spatial components of a fort. Each fort consists indeed of specific spatial components including the Redit, the main front building, the traditore battery, the moat, the glacis. In the framework these different strategies are defined by spatial components and illustrated by national and international case studies. In addition, global guidelines for enhancing the visibility and recognition of the forts in their environment are drafted. For the forts themselves guidelines are drafted at the level of the various components.



Matrix spatial components (Source: Framework 'Fortengordels rond Antwerpen')

Fort Oelegem is part of the Outside Line and was built in the period 1909-1913. The fort is built in plain concrete and after the Second World War the Antitank Canal was created, the western moat is part of this canal. The fort lies in a wooded area (castle domain Vrieselhof) and is therefore difficult to recognize. The buildings are invisible because of the woods, but the moat remained intact and the outer glacis remained fairly open. The fortress and the ramparts were protected as a monument in 1995. Furthermore the fort is designated as a natural area and the fortress island is protected as a nature reserve. The fort and its surroundings are currently an incoherent set of different scenic relics and valuable nature. These are not adapted to each other, nor to the surroundings. Therefore, the development of a large landscape is crucial. This landscape would form a tourist-recreational gateway with valuable nature. Furthermore, the focus will be on providing information on the various

valuable elements and the realisation of a uniform network of paths. These paths should be developed without disturbing the natural value of the area.

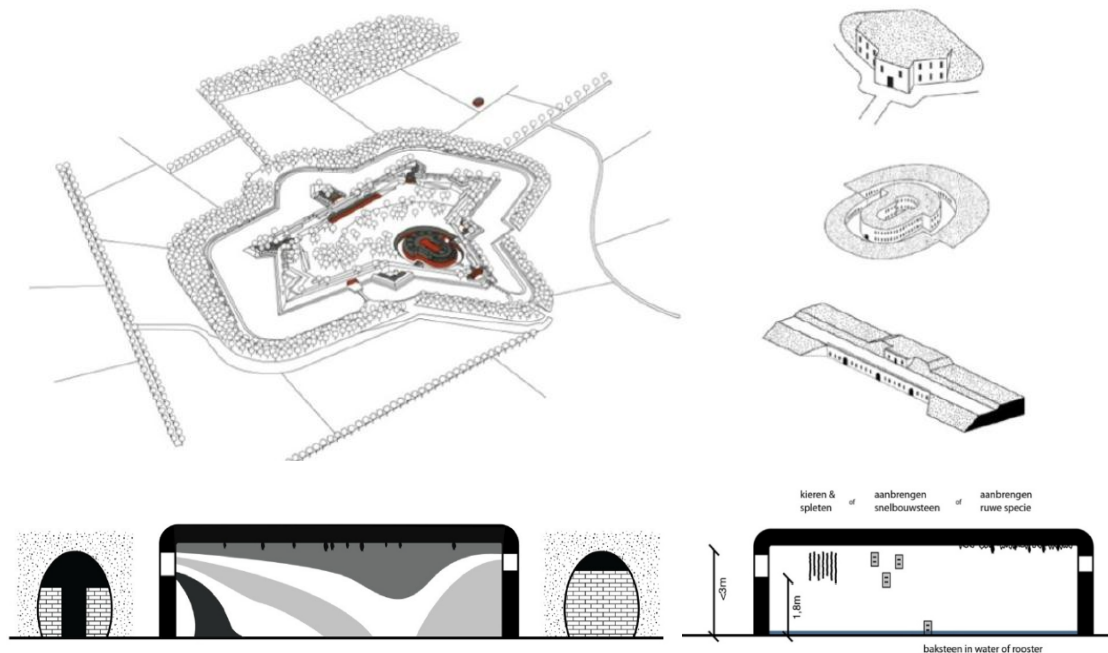


Fort Oelegem, aerial photo and interior (source: Vildaphoto and wikipedia)

4.2 Theme ecology and bats (case: Fort 7 Wilrijk)



Some general principles arose from the study of the habitat requirements of bats. Firstly, the framework plan suggests a customized approach per fortress. For each fort, a specific conservation plan for bats has to be prepared. This plan has to fit into the management plan which is directed specifically for each fort. In such a management plan, the various aspects (ecology, heritage and recreation) are handled. The bat conservation plan aims to maintain and enhance the existing bat population. For this, the exploratory studies in the framework can be used as a base. The framework creates a link between the necessary spaces for bats and the different spatial components of a fortress.



Relation spatial components and ecological conditions wintering site bats (Source: Framework Plan 'Fortengordels rond Antwerpen')

Fort 7 is part of the Brialmontgordel around Antwerp and is surrounded by housing districts built in the 20th century. Currently the fort serves as a nature reserve, where the flora seems to take over the buildings on the fort. Currently, both the fortress island and the surrounding glacis are overgrown by nature. The fort is largely designated as natural area with scientific value or natural reserve, according to the Gewestplan (a regional plan designating destinations). It is a breeding ground for the

Barn Owl and Kingfisher. Furthermore, the area is moderately important as a wintering site for bats. The area is an important green space in an urbanized area with valuable meadow vegetation and ancient forest plants.

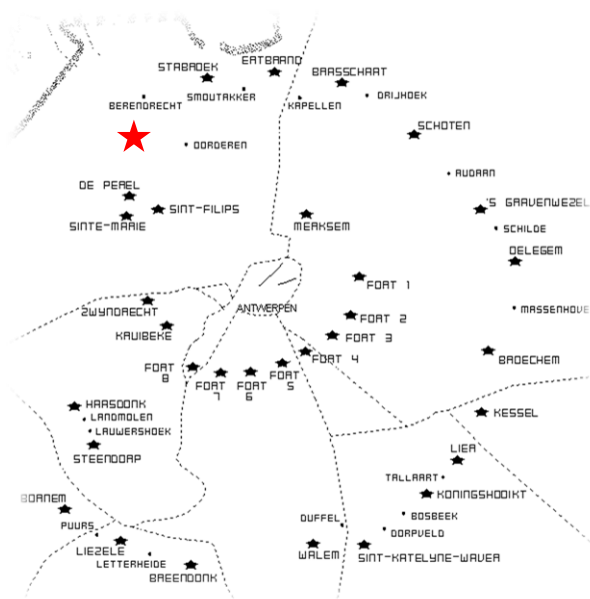


Fort 7, aerial photo and photo main front building (source: Vildaphoto)

Because of this high natural value, the fort is not freely accessible. It is half managed by Natuurpunt, a non-profit organization for nature conservation and development, and the other half is managed by a local fishermen's association. The biggest problem for Fort 7 is the lack of maintenance management. Therefore there is a direct and immediate danger to the safety of operators and guided visitors of the site. Furthermore, parts of the monument threaten to become irreparably damaged.

There is an urgent need for an integrated vision on the fort and the development of a management plan. It is proposed to restart a management committee for Fort 7 to guarantee the balance between the different functions. Furthermore, there is the wish to elaborate a professional inventory of the necessary maintenance works, both short and long term, in the near future. Moreover, the development of a vision for the monument in relation to function, use and maintenance of the buildings is being considered. Finally, the formal arrangements for management are reconsidered and a new agreement between Natuurpunt and ANB, the Flemish Department for Nature and Forests, is being negotiated.

4.3 Theme accessibility (case: Fort Lillo)



From the theme accessibility, some spatial principles were drawn. Firstly, a mobility test is to be made in terms of the accessibility of the forts. Such a test should give a clear picture about where measures have to be taken in light of mobility. This involves not only the activities in the fort itself but also the activities in the surroundings of the fort. Furthermore, the STOP-principle is proposed concerning adaptations to the mobility system. This means that measures for pedestrians precede over other transport modes, cyclers over motorized transport and public transport over private transport. Finally, a general and universal accessibility of the various forts is priority.

Fort Lillo is part of the Scheldt Defense and is surrounded by port activities. The fort is accessible via the Scheldelaan, a road with heavy port traffic. The fort has been drastically redesigned during the past century. A portion of the moat was used as a local marina. Another part of the moat was filled up for to construct a visitors' parking.



Picture of Lillo: aerial photo (source: Vildaphoto) and masterplan (source: Cluster & Grontmij)

In the context of the Sigma plan, raising the Scheldt Dykes is necessary. This intervention will have a major impact on the historic structure of the fort. In order to investigate the spatial possibilities, a master plan for the fort was drafted in 2010, which thoroughly revised the accessibility. The master plan proposes the construction of a new marina and visitor parking. The marina is placed near the Scheldt, integrated in the new Sigma Dyke. This makes it possible to restore the moat back to its original state. The visitor parking is moved to the Scheldelaan and forms a square in front of the fort. This makes it possible to strongly reduce the traffic in the fort itself. Furthermore, a ferry service between Fort Lillo and Fort Liefkenshoek is being worked

out. Through the connection of these twin forts, a unique walking and cycling link between the left and right banks is created.

4.4 Theme program (case Fort 4 Mortsel)



From the fourth theme program, a number of spatial principles were drawn.

First, it is stipulated that the functional possibilities always depend on the local context. This means a search for an ideal mix is needed in which various functions are mutually reinforcing, both temporal (temporary versus permanent positions) and programmatically (ecology versus recreation).

It is always necessary to ensure that the programs are not contradictory. The necessary balance varies per fort. Therefore it is necessary to draw up a masterplan, management plan or business plan for each fort. The framework 'Fortengordels rond

Antwerpen' proposes to assign a **main and secondary function** to each fort.

In search of possible programs consideration of the surrounding environment is necessary. For instance, the Brialmontforten, near the center of Antwerp, offer other possibilities than the forts in a rather rural area. There, the potential attraction of visitors is less, as is the potential accessibility of these forts by public transport. Furthermore, the local scope should also be considered. It is important that local residents may access the fort. In addition to the surrounding environment, the relative location of the forts within the fort belt must also be observed. This is of importance for the success of an enterprise or activity. Coordination of activities and programming is necessary instead of competition amongst forts. Furthermore, the program should enforce the preservation of military heritage. Between taking care of the cultural and historical heritage and the dynamics of spatial development, a tension is naturally present. A balance between conservation and development should always be sought to create a balance between conservation and development. This also means that the program must not affect the intrinsic properties of the fort belts.



Fort 4 (Source: Vildaphoto), play

Fort 4 in Mortsel is part of the Brialmont belt. The fort is quite unrecognizable except for the northeastern side where a municipal swimming pool, playground and a sports complex are situated in the outer glacis of the fort. Part of the canal is filled with earth. The buildings of the fort are in good condition and well preserved. The fort is, according to the Gewestplan designated as a park area and area for day-recreation and is largely accessible. The redoubt is not accessible to the public. However, since 2001, cultural activities are organised in the redoubt. The domain is then open to the public for certain hours. Since 2009 a visitor center on the Brialmontforten is located in the fort. From 2012, the domain will also be more accessible: a new tram line will be realized along the fort.

5. REDEVELOPMENT MODELS FOR MULTIFUNCTIONAL USE OF SITES

Given the large number of military relics, ownership and governance of the sites is very diverse. Some forts are fully owned by various government entities such as local municipalities, the Federal Ministry of Defence and the Agency for Nature and Forest, part of the Flemish government. Other forts are owned by private actors. Therefore many redevelopment models had to be devised in order to achieve the objectives of the framework plan Fortengordels Antwerpen. In general, these models can be categorized in three strategies: public management, private management and public private partnerships. Below these three strategies will be discussed by focussing on interesting case studies.

5.1 public management– case Fort of Duffel



Fort of Duffel (source: Vildaphoto), new entrance (source: Kempisch Landschap)

Location



The Fort of Duffel is part of the armored fort belt and specifically had to defend the railway connection Antwerp-Brussels. The moat is intact and the buildings are largely undamaged but in rather poor conditions. Nowadays the fort lies within a highly fragmented landscape. The fort is mainly used for soft recreation. Furthermore the fort is an important wintering site for bats given the convenient location. The big challenge is to find a good balance between nature, culture and recreation. In 2012 the entrance to the fort was renovated, some structural renovations were carried out and a tunnel specifically for bats was constructed.

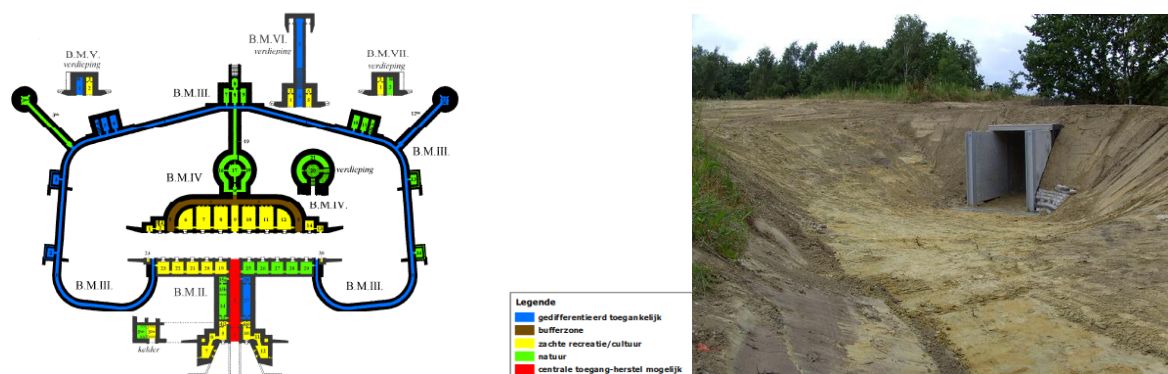
Public governance – a coöperation of different entities

The Fort of Duffel is owned by the public organization 'Vzw Kempens Landschap' (a non-profit organization which intends to preserve and maintain the campine landscape), but the site is managed by different public authorities. Each authority focusses on a different aspect of the site. The Fort of Duffel is an interesting example of how different public authorities cooperate in the management of a fortress. Natuurpunt (a non-profit organization for nature preservation and development) and the Flemish Agency for Nature and Forest optimize the fort as a wintering site for bats. Meanwhile the Province of Antwerp is responsible for the development of the fort as 'gateway', linking the inner en outer fort belt by a bicycle route along the railway line. The gateway must be a place where information, parking places and recreational infrastructure is provided.

To harmonize the governance of these different aspects, vzw Kempens Landschap drew up an Integrated Management Plan. This plan provides a framework for all actions in and around the fort. In drawing up the Integrated Management Plan the needs of all stakeholders were balanced: the Flemish Agency for Forest and Nature, vzw Kempens Landschap, vzw Natuurpunt and the Province of Antwerp.

Initially, a management plan for the forest was drafted at the end of 2009. This plan elaborates a set of interrelated measurements and regulations for accessibility, e.g. which areas of the fortress should be strictly reserved for bats, in which area space sharing can be allowed and how vegetation can be managed without disturbing the bats.

Furthermore, the vzw Kempisch Landschap has built a tunnel specifically for bats. This tunnel is part of a pilot. The new tunnel provides a wintering and summering site for bats. This tunnel is not connected to other rooms of the fortress but is an additional site. The tunnel was designed not to disturb the characteristic slopes of the fort site.



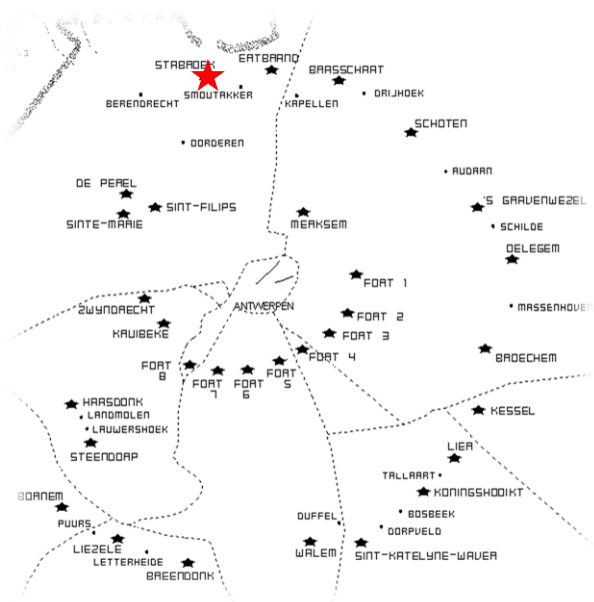
Integrated Management Plan for the Fort of Duffel and the new tunnel for bats (source: Kempisch Landschap)

5.2 private management – case Fort Of Stabroek



Fort of Stabroek (source: Vildaphoto)

Location



The Fort of Stabroek was part of the armoured belt around Antwerp and was completed in 1907. The fort stands out in the polder landscape, dominated by agriculture but in the immediate vicinity of the port of Antwerp. The cooling towers of the Doel nuclear power station, docks, mammoth trucks and stacked containers are spectacular elements visible from all around, making the port an integrated part of the landscape. The fort is situated along the Antitank Canal. The Antitank Canal is a 33 km and 6 m wide artificial canal northeast of the city of Antwerp and was intended to stop the German enemy tanks and other vehicles before they could reach Antwerp.

Private management with government support

The fort of Stabroek was sold to private actors after the Second World War. Today the fort is still privately owned and is run by a company that uses the fort for recreational activities such as paintball, laser tag, receptions, etc. Parts of these revenues are used to maintain and renovate the fort.

Although the fort is full private property and privately-operated for commercial purposes, public authorities play an important role in supporting these initiatives and extension of the conservation of the fort as military heritage.

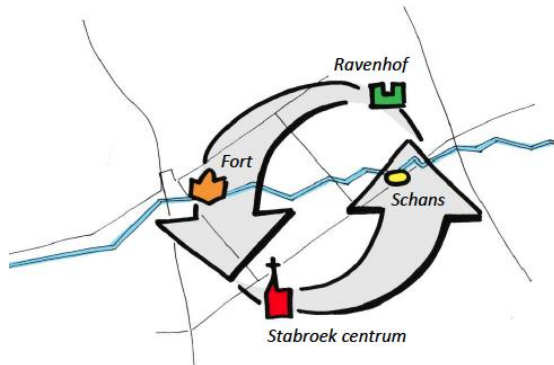
The fort is an interesting example on how the government can support private developments, without acting as the owner or operator of the fort. The role of the government is in this case situated on three domains: spatial visioning, creating legal certainty concerning the commercial exploitation of the fort and recreational accessibility to the fort. Each of the three domains, we will be briefly explained below.

- **Spatial visioning**

The Province of Antwerp coordinates the preparation of master plans and project initiatives to make sure the fort is embedded in large network.

The development of the port 'Fort Stabroek-Ravenhof' was one of the first steps in this ambition of the province. In this vision the fort is used as a reception area from which the fort and fort belts can be discovered. In this way, the fort is embedded in a network of poles of attraction in the area, including the center of Stabroek, the castle 'Ravenhof' domain and the Antitank Canal. Efforts will be made to offer a range of complementary activities. For example, a company could participate in team building activities at Fort Stabroek during the daytime, take a stroll along the Antitank Canal with a visit to the Entrenchment of Smout Akker in the afternoon, dine and party in the center of Stabroek in the evening and conclude the day with a stay in castle Ravenhof.

In this way, the fort is included in a larger network of activities and as a result, the commercial exploitation is supported. Besides visioning at macro scale, initiatives at micro scale were also developed. In the context of the European project 'Forten en Liniën in Grensbreed Perspectief' infomodules were designed. These modules will be placed near various forts and entrenchments as well as along the Anti Tank Canal. The design is based on the principle of a 'book' as information medium for its environment. An open side frames the surroundings, while a closed side carries all information.



Fort Stabroek as part of a network (source: Stramien, 2009)

- **Legal certainty in funtion of exploitation**

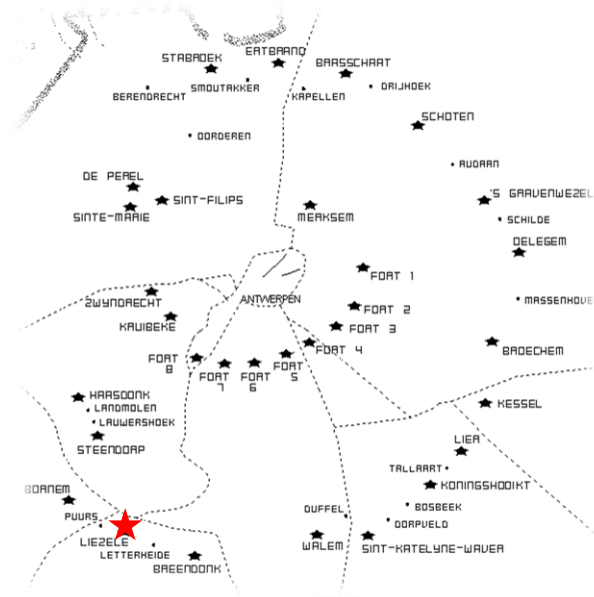
The making of a spatial implementation plan (SIP) was an initiative of the municipality Stabroek and started from a dual objective. First, the munincitipality wants to protect and strengthen the landscape, cultural and recreational identity of the site. Secondly, the SIP needs to insure juridical garantuees that commercial exploitation of the fortress may continu. In 2009 a SIP for the site was directed. The SIP projects a further development of the site towards a recreational hub, with special attention for nature development. Furthermore the SIP focusses on the renovation of the fortress and conservation of valuable buildings. The recreational dynamics in and around the fort should be restrained as the site has such high ecological and cultural value. Therefore a part of the fort has been indicated as a SAC for bats.

- **Recreational Routes**

The Provincie of Antwerp is working on a new cycling path along the Antitank Channel, a action within the Framework 'Fortengordels Antwerpen'. The project consists of a study, the realisation of two missing links in the cycling netwerk and a educational campagne. Initially, a new cycle track of 3.5 km between Fort Stabroek and Schans of Smoutakker shall be realized. As a result the Fort of Stabroek will be embedded in a recreational network from which the commercial exploitation of the site will surely benefit.

5.3 Public-private partnership – case Fort of Liezele

Location



The Fort of Liezele is part of the armoured belt around Antwerp. The fort has largely been restored and is currently a museum. The museum attracts currently about 10,000 visitors a year and visitor amounts keep rising. A part of the site is a SAR for bats. Besides people visiting the museum, the fort attracts recreational fishermen and walkers. The fort is part of the green belt around the city of Puurs. This belt has been indicated in local plans and in the future this belt will be further developed as a landscape and recreational structure in and around the center of Puurs. As such, the Fortress of Liezele will be embedded in a coherent landscape; a new cemetery, a grassland for events, a walking circuit, water, etc.

Public-private partnership

IN 1979 the fort became property of the municipality Puurs. The non-profit organisation 'vzw Fort Liezele' takes on the management of the artified area, in close cooperation with the municipality. An agreement between both parties defines that 'vzw Fort Liezele' should valorise the fortress and that the municipality will provided a yearly budget. In return the 'vzw Fort Liezele' makes a yearly plan in which actions are listed. This plan must be approved by the municipality. All profits of the exploitation of the site are reinvested in the museum and its collection. The municipality finances the energy and green maintenance costs. As the municipality owns the fortress, major restorations are financed by the municipality, subsidized by the Flemish government. The site is an interesting case on how public and private parties (in this case the non-profit organisation 'vzw Fort Liezele') may work together in order to achieve goals.





Fort of Liezele (source: Vildaphoto (above) and AmaZony (below))

6. GOVERNANCE MODELS

In 2012 the framework 'Fortengordels rond Antwerpen' was completed. To accomplish such framework loads of consultations were needed. These consultations were structured in a sustainable structure (see diagram below). Building and maintaining this structure for consultations was financed by the Flemish government, Department of Spatial Policy, Housing and Immovable Heritage. The project coordination team, responsible of the daily management of the project, are at the core of the structure. They gathered on a weekly basis and are controlled by the Province of Antwerp, Unit Regional Policy. As the project is being further developed, the Province of Antwerp operates as director of the project.

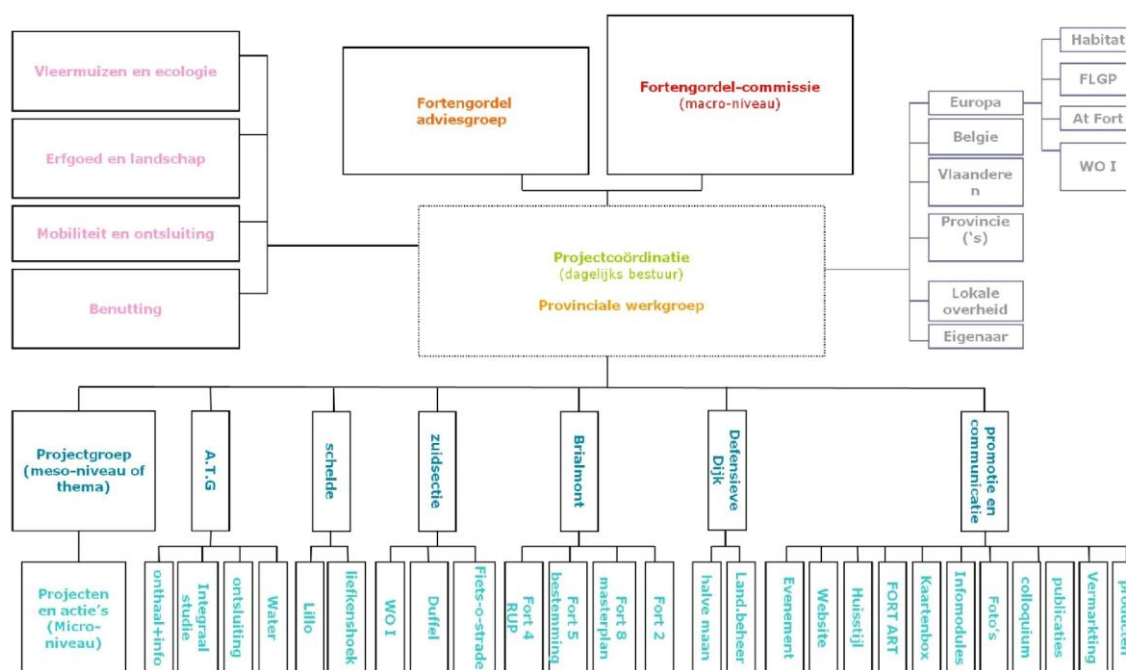


diagram depicting the consultation structure in order to achieve the definite framework 'Fortengordels rond Antwerpen' (source: Kaderplan Fortengordels rond Antwerpen)

As the Province of Antwerp operates as director of the project, this entity created four thematic groups: (1) bats and ecology, (2) heritage and landscape, (3) mobility and accessibility and (4) use, in order to give specific input. Furthermore, the different governmental entities, the local municipality and the owners give input to the project coordination team.

All knowledge, ideas, projects, and relevant material are collected by the daily management and are presented to a team of provincial civil servants, an advisory board and the commission of the project 'Fortengordels rond Antwerpen'. The team of provincial civil servants looks into the proposals and translates them into the provinces own policy and internal communication. Furthermore, this team advises the Provincial Council. The advisory board is a think tank in which all proposals are screened. Its members are representatives from the various sectors, experts and sometimes engineering offices (depending on the project proposal). In the commission of the

project 'Fortengordels rond Antwerpen', which acts as the steering committee, are presented to the committee members; representatives of the various governments, all municipalities and owners.

In addition, extra consultation sessions are organized at meso and micro level. Here project teams (one for each structure on the mesoscale e.g. the Brialmont belt) follow and give advice on the different projects and actions for each fort (micro scale).

7. REPORT OF THE RSG-MEETING

On 18 December the RSB meeting was held in Antwerp. Various local actors, involved in the management and maintenance of the military heritage sites, were present. At this meeting the following items were discussed:

1. Approval of the previous meeting report
2. Operation Report (distributed)
3. Framework: Proposal vision and initiate actions
4. Event 'de fortengordel'
5. Case fort Duffel: cooperation and coordination, integrated management, restoration and EU funding, event 2014
6. 'Great War': Event 2014, gateways / traveling exhibition
7. Case fort Oelegem: vision
8. Case Fort 4 Mortsel: SIP, management, business
9. EU project 'At Fort: experience and knowledge 'conservation through development'
 - a. feedback workshop 'restoration'
 - b. themes and workshops dates 2013 and 2014 closing event
 - c. participation services and external actors
 - d. Self analysis report
10. Miscellaneous

The next meeting is scheduled for 26 March 2013.

8. LITERATURE

ANTEA GROUP, 2011, *Recreatieve ontsluiting Antitankgracht, Rapport Visie en Ontwerp*

DE RIDDER, J., *aanzet tot een erfgoedvisie voor Fort 7*

LECLERCQ, E., BEEK, M., KOOIMAN, M., VERHOESTRAETE, D., et.al., 2012, *Kaderplan Fortengordels rond Antwerpen, strategische nota*

LECLERCQ, E., BEEK, M., KOOIMAN, M., VERHOESTRAETE, D., et.al., 2012, *Kaderplan Fortengordels rond Antwerpen, kaartenbundel*

LECLERCQ, E., BEEK, M., KOOIMAN, M., VERHOESTRAETE, D., et.al., 2012, *Kaderplan Fortengordels rond Antwerpen, informatiefiches*

LECLERCQ, E., BEEK, M., KOOIMAN, M., VERHOESTRAETE, D., et.al., 2012, *Kaderplan Fortengordels rond Antwerpen, strategische nota*

PROVINCIE ANTWERPEN, 2012, *Strategisch Project Fortengordels rond Antwerpen, werkingsverslag 2009-2012*

PROVINCIE ANTWERPEN, 2012, *Structuurvisie Poort Vrieselhof – Fort van Oelegem*

SORESMA, 2008, *ontwerpnota RUP Fort van Stabroek*

STRAMIEN, 2010, *Poort Fort van Stabroek-Ravenhof*

VMM, 2011, *Oppervlaktekwantiteitsmodellering Antitankgracht, Eindrapport*

www.fortengordels.be